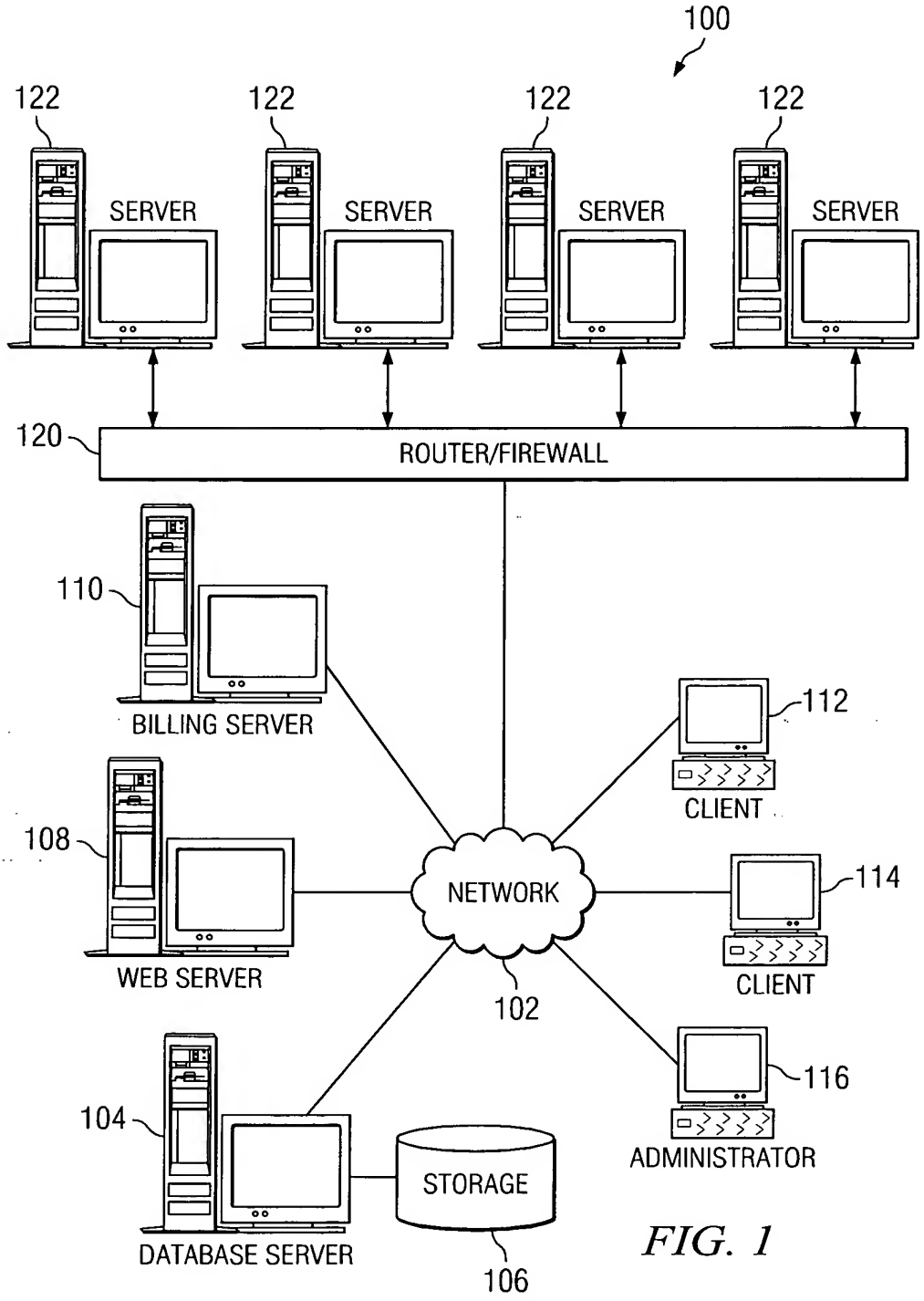

100
122
122
122
122
SERVER
SERVER
SERVER
SERVER
120
ROUTER/FIREWALL
110
BILLING SERVER
112
CLIENT
108
WEB SERVER
NETWORK
114
CLIENT
102
116
ADMINISTRATOR
104
STORAGE
DATABASE SERVER
106

FIG. 1

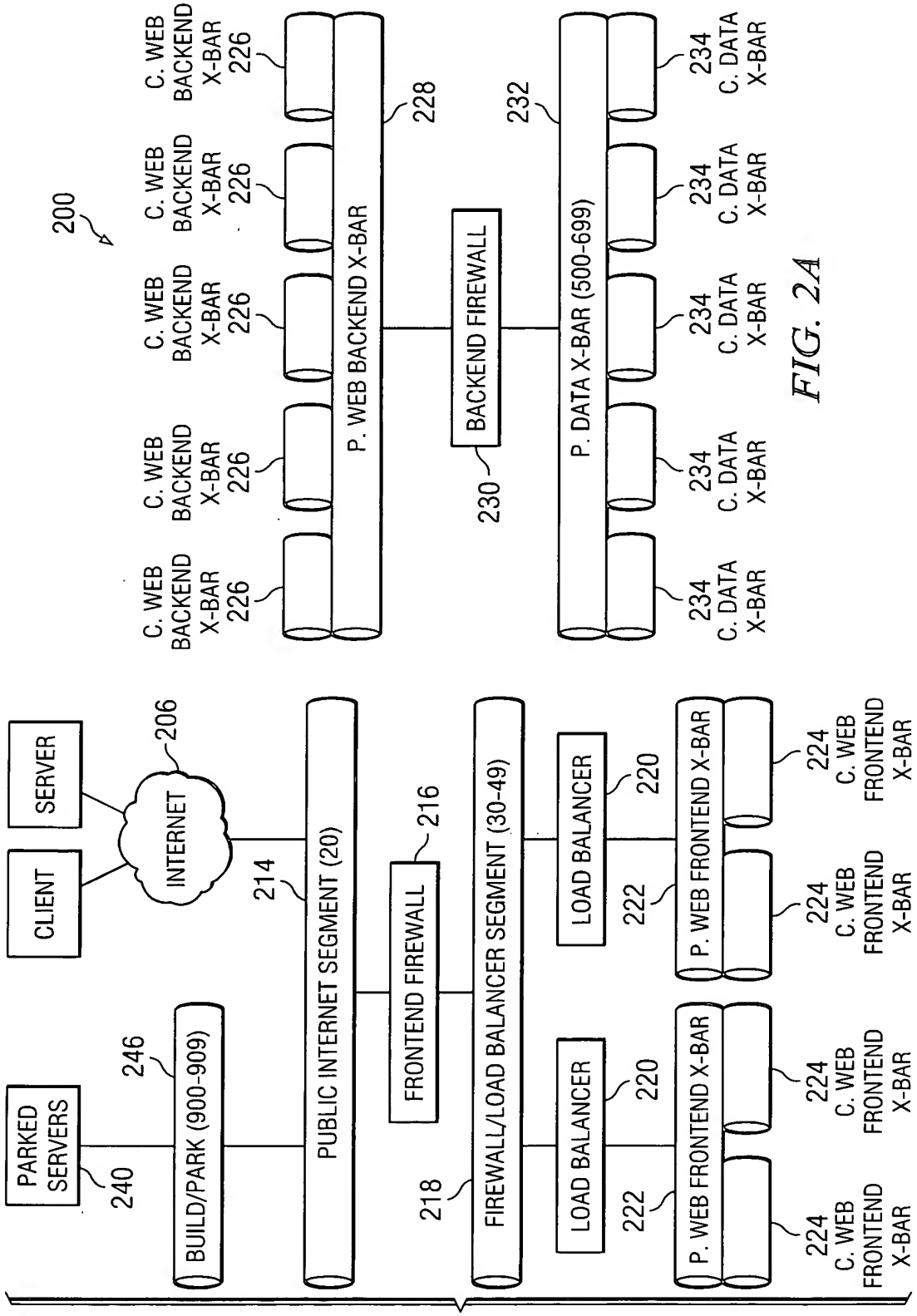
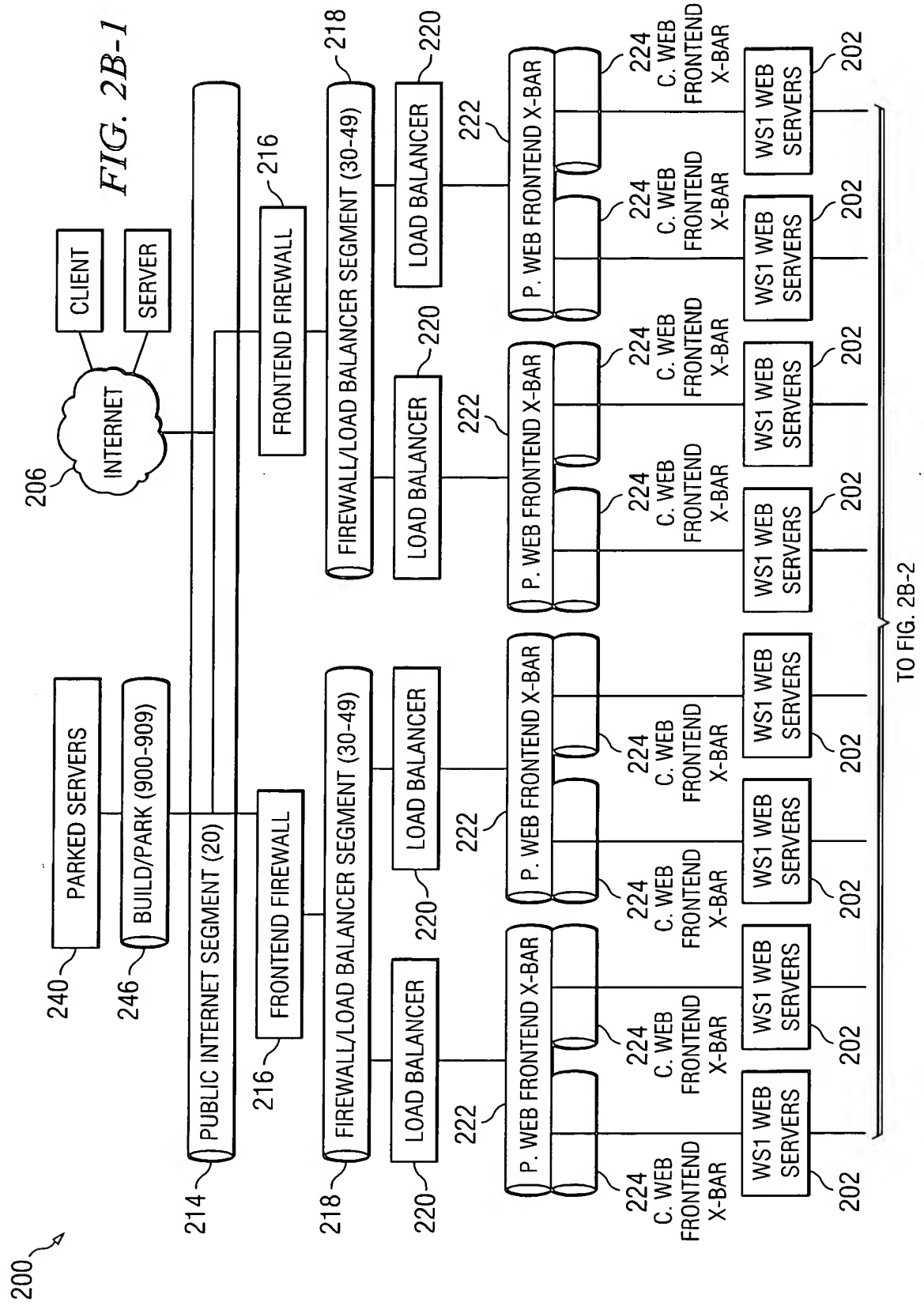

200
C. WEB BACKEND X-BAR
226
P. WEB BACKEND X-BAR
228
BACKEND FIREWALL
230
P. DATA X-BAR (500-699)
232
C. DATA X-BAR
234
PARKED SERVERS
240
BUILD/PARK (900-909)
246
CLIENT
SERVER
INTERNET
206
PUBLIC INTERNET SEGMENT (20)
214
FRONTEND FIREWALL
216
FIREWALL/LOAD BALANCER SEGMENT (30-49)
218
LOAD BALANCER
220
P. WEB FRONTEND X-BAR
222
C. WEB FRONTEND X-BAR
224

FIG. 2A

FIG. 2B-1


200
PARKED SERVERS
240
BUILD/PARK (900-909)
246
PUBLIC INTERNET SEGMENT (20)
214
INTERNET
206
CLIENT
SERVER
FRONTEND FIREWALL
216
FIREWALL/LOAD BALANCER SEGMENT (30-49)
218
LOAD BALANCER
220
P. WEB FRONTEND X-BAR
222
C. WEB FRONTEND X-BAR
224
WS1 WEB SERVERS
202
TO FIG. 2B-2

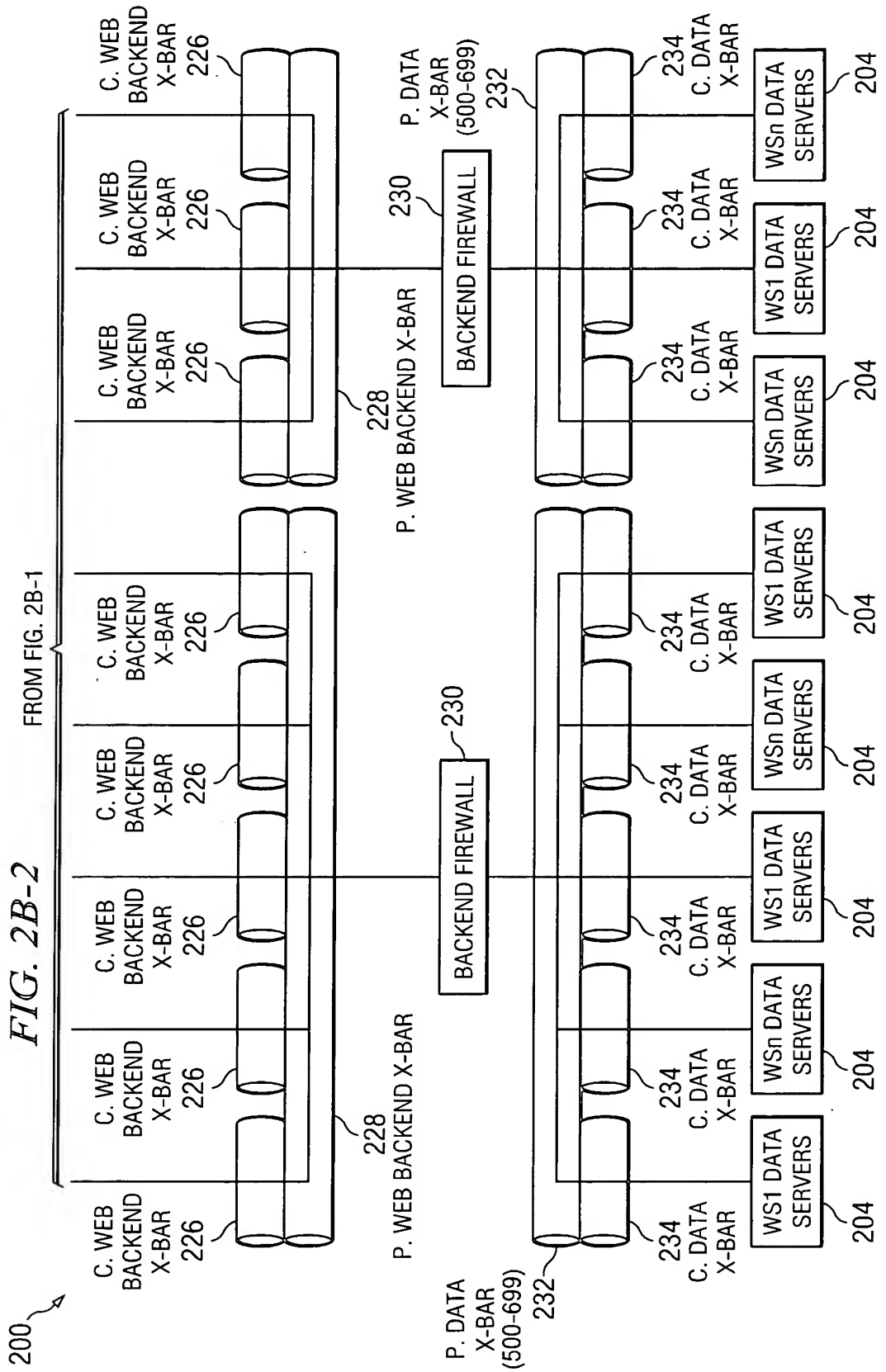

200
FROM FIG. 2B-1
C. WEB BACKEND X-BAR
226
P. WEB BACKEND X-BAR
228
BACKEND FIREWALL
230
P. DATA X-BAR (500-699)
232
C. DATA X-BAR
234
WS1 DATA SERVERS
WSn DATA SERVERS
204

FIG. 2B-2

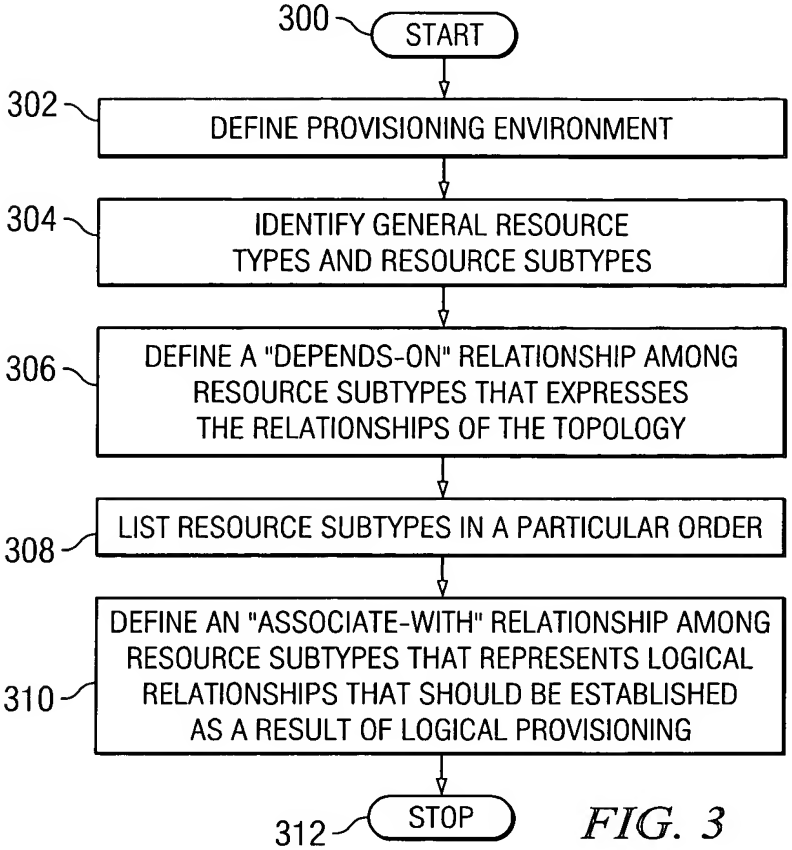


FIG. 3

```
500 Select (R, I, N) returns resource instance set
        Identify a minimal r ∈ R using topological order   501
        Let S1, ... , Sk be all sets of Nr resource instances   502
 such that:  ∀ s ∈ Sj is of subtype r
             ∀ s ∈ Sj is available
             ∀ s ∈ Sj , if r depends-on r', ∃ t ∈ I such
that t is of type r' and s depends on t
503     for j = 1 to k do
504         success = set_all_states
                                (Sj, 'available', 'reserving')
505         if (success)
                I' = Select (R-{r}, I U Sj, N)   506
                if (I' not equal (I U Sj) ) then   507
                    return (I U Sj U I')   508
            else set_all_states
                                (Sj, 'reserving', 'available')
509         end   510
511 end
    return (I)   512
```

FIG. 5

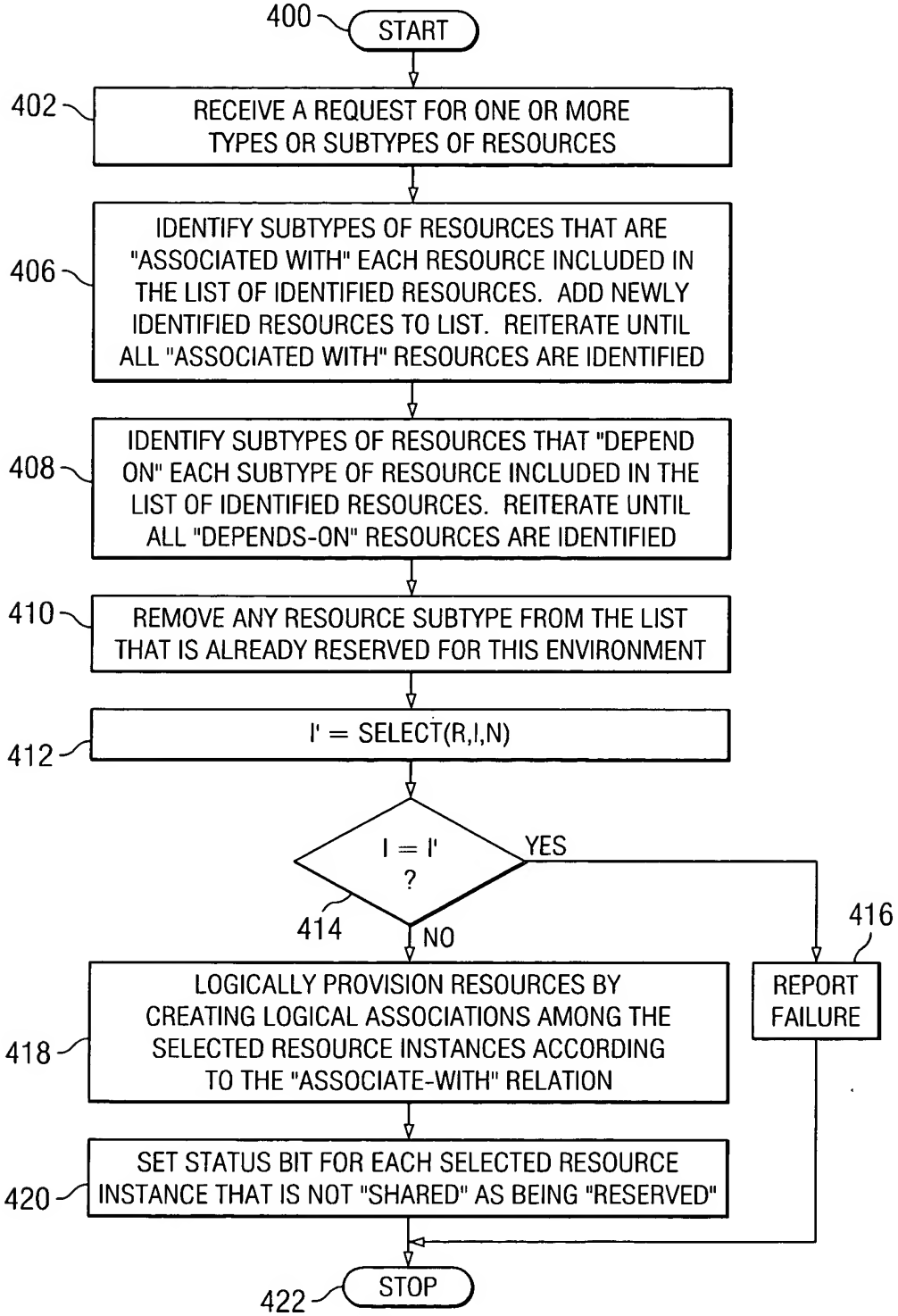

400
START
402
RECEIVE A REQUEST FOR ONE OR MORE TYPES OR SUBTYPES OF RESOURCES
406
IDENTIFY SUBTYPES OF RESOURCES THAT ARE "ASSOCIATED WITH" EACH RESOURCE INCLUDED IN THE LIST OF IDENTIFIED RESOURCES. ADD NEWLY IDENTIFIED RESOURCES TO LIST. REITERATE UNTIL ALL "ASSOCIATED WITH" RESOURCES ARE IDENTIFIED
408
IDENTIFY SUBTYPES OF RESOURCES THAT "DEPEND ON" EACH SUBTYPE OF RESOURCE INCLUDED IN THE LIST OF IDENTIFIED RESOURCES. REITERATE UNTIL ALL "DEPENDS-ON" RESOURCES ARE IDENTIFIED
410
REMOVE ANY RESOURCE SUBTYPE FROM THE LIST THAT IS ALREADY RESERVED FOR THIS ENVIRONMENT
412
I' = SELECT(R,I,N)
I = I' ?
YES
NO
414
416
REPORT FAILURE
418
LOGICALLY PROVISION RESOURCES BY CREATING LOGICAL ASSOCIATIONS AMONG THE SELECTED RESOURCE INSTANCES ACCORDING TO THE "ASSOCIATE-WITH" RELATION
420
SET STATUS BIT FOR EACH SELECTED RESOURCE INSTANCE THAT IS NOT "SHARED" AS BEING "RESERVED"
422
STOP

FIG. 4